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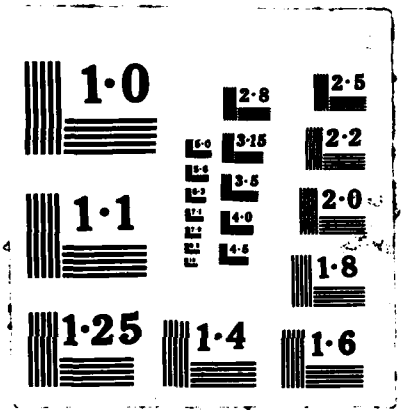
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INFLUENCE OF COMPLEXING ON THE REACTIVITY OF POLAR UNSATURATED MONOMERS

by

B.L. Yerusalimskiy, V.N. Krasulina, Yu. Ye. Eyzner

PARTIALLY EDITED MACHINE TRANSLATION

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By: B.L. Yerusalimskiy, V.N. Krasulina, Yu. Ye. Eyzner

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Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

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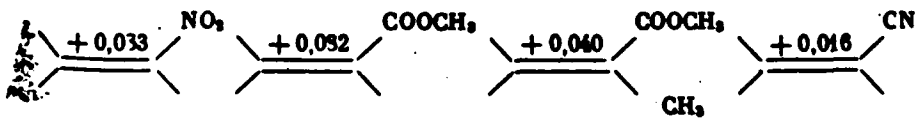
INFLUENCE OF COMPLEXING ON THE REACTIVITY OF POLAR UNSATURATED MONOMERS

B. L. Yerusalimskiy, V. N. Krasulina, Yu. Ye. Eyzner

Dear editor!

The known data about the behavior of vinyl monomers (M) during anionic polymerization conform to the following order of activity: nitroethylene > acrylonitrile (AN) > methylacrylate (MA) > methyl methacrylate. At the same time the calculations of distribution of electron energy, made by us according to the method of zero differential overlapping [1], lead to another order, as this show π-electron components of charge of p-carbon atom of vinyl group in the monomers indicated.

over



Copolymerization of AN with MA in toluene at -60°.
(Molar ratio AN:MA=1. Concentration of lithium butyl 0.01 mole/l).

[ДМБ], моль/л (1)	(2) Выход сополимера, %	(3) МА в сополимере, %
—	7,0	36,6
0,01	17,6	57,3
0,03	10,6	70,0

Key: (1). [DMB], mole/l. (2). Yield of copolymer, %. (3). MA in copolymer, %.

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contd

We assumed that this nonconformity is caused by different relative contribution of the course of reaction of propagation for each of the monomers through the stage of complexing with the gegenion. About a significant change of the electron density in the vinyl group of monomer with the formation of complexes of the type $CH_2=CHX \leftrightarrow MeR$ (where X - polar group, MeR - metal-alkyl) testify our calculations, which relate to the complexes AN and MA with lithiummethyl [2]. The role of complexing as the factor, which influences monomer activity, appeared during the comparison of copolymers - AN-MA, obtained by us under the action of lithiumbutyl and its complex with 2,3-dimethoxybutane (DMB). As it turned out, the coordination saturation of gegenion by the independent base of Lewis leads to the formation of copolymer with the preferred content MA (table), i.e. such composition, which will agree with the results of quantum-chemical calculations.

Russian translation

Apparently, with the formation of complexes $M \rightarrow MeR$ is important not only selection of one of the monomers, but also its activation, caused by the change of the electronic characteristic of double bond [2], since the reaction of propagation, which takes place besides the stage of complexing, is not excluded.

Received by the editorial staff 16.I.1970.

Literature.

1. J. A. Pople, G. A. Segal, J. Chem. Phys., 44, 3289, 1966.
2. Б. Л. Ерусалимский, International Symposium on Macromolecular Chemistry, Plenary and Main Lectures, Sect. 3, Budapest, 1970.

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